

## Re-numbered Claims

Applicants: Jeffrey Wilusz et al.

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### Listing of Claims

Please amend the claims by replacing all prior versions of the claims with the following listing of claims:

1. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
  - a) polysome-free HeLa cell cytoplasmic extract;
  - b) a methylated cap analog; and
  - c) a cap-labeled mRNA substrate.
- ~~6~~  
2. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.
- ~~7~~  
3. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~2~~ wherein said HeLa cell cytoplasmic extract is prepared by dialysis of said extract containing 10% glycerol.
4. (cancelled)
- ~~8~~  
~~5~~ 6. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~2~~ wherein said S100 cell cytoplasmic extract comprises a 100,000 x g, 1 hour supernatant from a HeLa cell lysate.
- ~~2~~  
~~6~~ 6. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said methylated cap analog is <sup>7me</sup>GpppG or <sup>7me</sup>GTP.
- 7 - 8. (cancelled)
- ~~3~~  
~~9~~ 9. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

~~4~~  
~~10.~~ (currently amended) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.

~~9~~  
~~11.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate comprises poly(A) or at least one RNA element.

~~13~~  
~~12.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~11~~<sup>9</sup> wherein said RNA element is an AU-rich element.

~~10~~  
~~13.~~ (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~11~~<sup>9</sup> wherein said RNA element is a pyrimidine-rich element.

14 - 16. (cancelled)

~~16~~  
~~17.~~ (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:  
a) a polysome-free HeLa cell cytoplasmic extract;  
b) a methylated cap analog; and  
c) cap-labeled mRNA substrate.

18. (cancelled)

~~17~~  
~~19.~~ (previously presented) The kit of claim ~~17~~<sup>16</sup> wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

~~18~~  
~~20~~. (currently amended) The kit of claim ~~17~~<sup>16</sup> wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.

21 - 26. (cancelled)

~~5~~  
~~27~~. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 further comprising means for sequestering proteins that bind to poly(A).

~~11~~  
~~28~~. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~1~~<sup>9</sup> further comprising means for stimulating decapping of the cap-labeled mRNA substrate wherein the cap-labeled mRNA substrate comprises poly(A).

~~12~~  
~~29~~. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~1~~<sup>9</sup> further comprising a cold poly(A) competitor RNA.

~~14~~  
~~30~~. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~12~~<sup>13</sup> further comprising means for reducing decapping of the cap-labeled mRNA substrate.

~~15~~  
~~31~~. (currently amended) The mammalian *in vitro* mRNA decapping system of claim ~~12~~<sup>13</sup> further comprising an AU-rich element competitor RNA.

~~20~~  
~~32~~. (previously presented) The kit of claim ~~17~~<sup>16</sup> wherein the cap-labeled mRNA substrate comprises poly(A).

~~21~~  
~~33~~. (previously presented) The kit of claim ~~22~~<sup>20</sup> further comprising means for stimulating decapping the cap labeled mRNA substrate.

<sup>22</sup>  
~~24~~. (previously presented) The kit of claim <sup>20</sup>~~22~~ further comprising a cold poly(A) competitor RNA.

<sup>23</sup>  
~~25~~. (previously presented) The kit of claim <sup>16</sup>~~17~~ wherein the cap-labeled mRNA substrate comprises an RNA element.

<sup>24</sup>  
~~26~~. (previously presented) The kit of claim <sup>23</sup>~~25~~ wherein the RNA element is an AU-rich element.

<sup>25</sup>  
~~27~~. (currently amended) The kit of claim <sup>24</sup>~~26~~ furthering further comprising means for reducing decapping the cap-labeled mRNA substrate.

<sup>26</sup>  
~~28~~. (previously presented) The kit of claim <sup>24</sup>~~26~~ further comprising an AU-rich element competitor RNA.

<sup>27</sup>  
~~29~~. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:

- a) a polysome-free HeLa cell cytoplasmic extract;
- b) a cap-labeled mRNA substrate; and
- c) means for decapping the cap-labeled mRNA substrate.

<sup>29</sup>  
~~30~~. (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:

- a) a polysome-free HeLa cell cytoplasmic extract;
- b) a cap-labeled mRNA substrate; and
- c) means for decapping the cap-labeled mRNA substrate.

<sup>19</sup>  
~~31~~. (previously presented) The kit of claim <sup>16</sup>~~17~~ wherein the polysome-free HeLa cell cytoplasmic extract is HeLa S100 cell cytoplasmic extract.

<sup>28</sup>  
~~32~~. (previously presented) The kit of claim <sup>27</sup>~~29~~ wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.

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~~20~~  
43.

(previously presented) The kit of claim ~~40~~<sup>29</sup> wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cytoplasmic extract.